US-PAT-NO: 6204066

DOCUMENT-IDENTIFIER: US 6204066 B1

TITLE: Rapid method for determining the erythrocyte sedimentation rate in a sample of anticoagulated whole blood

DATE-ISSUED: March 20, 2001

US-CL-CURRENT: 436/70, 422/73 , 436/177 , 436/69 , 73/61.65

APPL-NO: 09/ 344991

DATE FILED: June 25, 1999

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Detailed Description Text - DETX (13):

FIG. 4 shows a typical plot in hyperbolic space of the fitted data 15, and the actual curve 14, wherein a best fit is determined over the region 13 of curve 14 to produce a fitted line 15. In this graph, the Y axis point of intercept 16 with the fitted line plot 15 is indicative of the position of the erythrocyte-plasma interface 5 after an infinite period of centrifugation of the blood sample. In other words, the Y axis intercept 16 with the fitted line 15 predicts what the terminal interface position (i.sub.p) would be if the sample were spun forever. A mathematical function, such as the **slope** (sl) of the **linearized line** 15 is then determined, which **slope** sl represents the magnitude of the erythrocyte zeta potential for a particular length of packed red blood cells.

Detailed Description Text - DETX (14):

To isolate the effect of the zeta potential, which is the desired measurement, it is required that the **slope of the linearized line** 15 be corrected for the length of the packed red blood cell column i_p. This correction is i_p /sl, which is directly proportional to the Westergren sedimentation rate. This numerical value i_p /sl may be used as is, with its own normal and abnormal ranges for patient care, but it is usually more desirable that the number be numerically equal to the Westergren sedimentation rate value of millimeters per hour, with which practitioners are most comfortable. To convert the centrifugal sedimentation value to the Westergren value, one uses the formula: $V_W = k_1 + (k_2 \cdot V_c)$; wherein V_W is Westergren units; V_c is the value calculated using the method of this invention; k_1 is an intercept constant; and k_2 is a slope constant. The values k_1 and k_2 are easily found by analyzing a series of samples with varying sedimentation rates by both the Westergren method and the method of this invention, and performing a least-squares fit on the resultant data. The constants k_1 and k_2 are respectively the intercept and slope constants of the least squares fit.

US-PAT-NO: 6324490

DOCUMENT-IDENTIFIER: US 6324490 B1

TITLE: Monitoring system and method for a fiber processing apparatus

DATE-ISSUED: November 27, 2001

US-CL-CURRENT: 702/184, 700/108 , 700/110 , 702/182 , 702/185

APPL-NO: 09/ 237340

DATE FILED: January 25, 1999

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Detailed Description Text - DETX (37):

FIG. 6 illustrates an exemplary plot of points of, indicated by reference numeral 132, of a set of data, P, versus apparatus operating time where there are variations in apparatus performance not due to plate wear. A representative **line** 134 fitted to the points, such as by using the method of least squares or by piecewise **linearization,** shows that the **slope of the line** 134 is not negative, i.e. not downward, or not sufficiently negative over time indicating any variations in apparatus performance are not due to plate wear. When a newly installed plate first begins operation, a set of such data is stored and analyzed to provide a benchmark against which later data sets are compared. Although line 134 appears to slope slightly upwardly over time a line at or about startup of a newly installed plate is generally horizontal or generally parallel to the x-axis, in this case the time

axis.

Detailed Description Text - DETX (49):

Therefore, linear regression or piecewise **linearization** preferably is performed on the data set to obtain the **slope,** b, of a **line** fitted to the data set of a particular apparatus. In one preferred implementation, if the slope, b, becomes negative, a plate change recommendation 126 is made. In another preferred implementation, if the slope, b, changes more than about 10% from the threshold, a plate change recommendation is generated. For example, if the slope, b, changes more than about 10% from a baseline slope measurement or from the slope of the most recent slope determination, the plate change recommendation is made.